

Team-Issuing Style of a Digital Badge: Operation System for Quality Assurance of Education

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Abstract: A digital badge is a symbol not only of completion rewards but also of mastery associated with a learning process and its outcomes. Based on this idea, we designed a digital badge as a learning portfolio linked to an instructional design workshop and issued these badges to those who met criteria for completing an assignment. To ensure that the process for issuing the digital badge was transparent and reasonable, we adopted a team style. In this study, we share our operation system for issuing the digital badge and introduce some reactions from participants. As collected in a questionnaire survey, some comments from participants suggested the digital badge, which is operated through the team-issuing style, might contribute to quality assurance in education. Implications and future directions of the study topic are discussed.

Introduction

Kumamoto University has offered instructional design (ID) workshops since 2011 as a part of its lifelong learning activities. The goals of this specific workshop are: 1) to teach participants basic ID knowledge and improve their instructional effectiveness, efficiency, and ability to attract attention; and 2) to enable participants to apply ID in educational presentations and present proposals for its improvement. Thus far, a broad variety of working professionals from a number of fields, such as university faculty, medical doctors, nurses, human resource professionals in companies and Japanese teachers, to name a few, have attended the workshops.

In 2015, we redesigned the format of the workshop from one-day face-to-face workshops to a blended style composed of pre-workshop learning activities (approximately one month before the workshop), day long face-to-face workshops, and post-learning activities (approximately one month after the workshop) (Amano et al., 2017). Through this redesign, we attempted to conduct more practical learning during the face-to-face training through case discussions or Q&A with lecturers by offering e-learning opportunities for exposure to basic knowledge surrounding ID. Digital badges are then issued to participants once they met the criteria for passing post-learning activities. This change was made to issue certificates based on learning outcomes instead of seat time. This provides an element of quality assurance to the workshops.

At the time of launch, there were few digital badge projects, and we fumbled about to construct an operational system. More recently, there has been an increase in digital badge projects. However, there are few reports on how to operate and guarantee the quality of the digital badge. Therefore, the purpose of this study is to report on the case operation system of our digital badge programs and share the current issues for sustainable operation. We hope that our experience might be helpful for those who are going to operate digital badges in the future.

Design of a Digital Badge Program

A digital badge program was part of the university extension courses offered by Kumamoto University. The learning content of the program was instructional design (ID). The purpose of these courses are as follows: 1) to allow participants to gain basic knowledge of ID and to enhance their education from the viewpoint of effectiveness, efficiency, and attraction; and 2) to enable participants to apply ID in educational tasks related to their jobs and present proposals for improving their tasks. Table 1 shows the learning objectives and evaluation methods. To allow participants to learn practical skills that might be useful in improving their educational tasks, the learning objectives were set as intellectual skills focused not on knowledge memorization but rather on its application. In the post-

learning assignment, concrete ideas to improve educational cases and action plans were included to facilitate participants' application of their learning outcomes to their jobs. Thus far, a broad variety of professionals, such as university lecturers, medical doctors, nurses, and Japanese language teachers, have attended these ID courses. These courses are composed of two courses: an introductory course and a practical course. In the introductory course, participants acquire basic ID skills and consider improvement proposals for educational topics presented by lecturers. In the practical course, the goal is to present improvement ideas for the educational topics that participants engaged in based on the skills they acquired in the introductory course. Both courses consist of prior learning activities (online), a face-to-face program (one day), and post-learning activities (online). The online phases allow participants to effectively utilize the one day face-to-face phase. These online activities were required in order to submit coursework items; therefore, they acted as a prerequisite for evaluation to allow participants to select the best learning path. Finally, participants acquired a digital badge if they met all these evaluation criteria and prerequisites for each course?the introductory and practical (Figure 1).

The digital badge was developed by combining the standard features of Moodle, an open source learning management system (LMS) (Figure 2). Specifically, the badge was issued to participants who individually met the passage criteria using the "course badge" function of Moodle. Furthermore, learning processes and outcomes were linked with the digital badge through the inclusion of a link in the description of the badge that led to a "detailed report" page. This page listed the learning process and outcomes of the individual participant and included specific feedback on the final report from the lecturer.

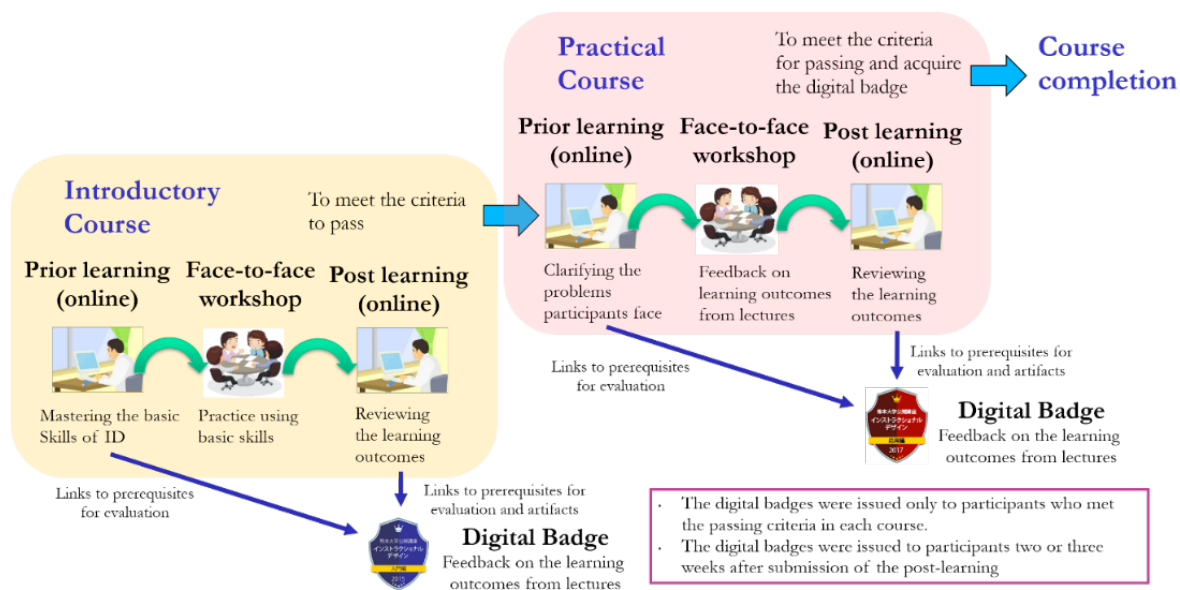


Figure 1. Mastery-based design of the ID courses (From Figure 1 of Amano et al., 2018)



Figure 2. Function of the digital badge using default tools of Moodle (From Figure 3 of Amano et al., 2017)

Team-issuing style of the digital badges

There are three features of our digital badge: 1) participants who met criteria acquire the digital badge, 2) the digital badge is linked to learning portfolio that participants submit as their learning outcomes and can share via email and SNS, 3) individual feedback from lectures to the learning outcomes that each participant submits is displayed on the digital badge. In this way, our digital badge is not issued automatically as with online videogames, instead it must be checked and reviewed by professionals. We believe the transparency involved in and verification process of issuing the digital badge generates a certain level of quality assurance. Therefore, we constructed the team-issuing style of the digital badge (Figure 3).

First, the review staff (first author) creates a draft for pass/fail judgment that includes a scoring of learning outcomes and advisory comments (phase 1). Next, the review staff submits the draft to lecturers (second, third and fourth authors) of ID courses (phase 2). Lecturers check the draft and present or demonstrate improvement ideas if needed (phase 3) and return them to review staff (phase 4). Then, the review staff revises that draft based on advice of lectures. Finally, review staff issues the digital badge that is linked to each learning portfolio and displayed with individual feedback to each participant.

Participants can share their digital badges online. Learning outcomes are freely shareable. Therefore, we must explain why each participant was eligible for passage and how their outcomes were positive. In short, evaluation accountability is essential to the digital badge. Therefore, we adopted such a cautious method.

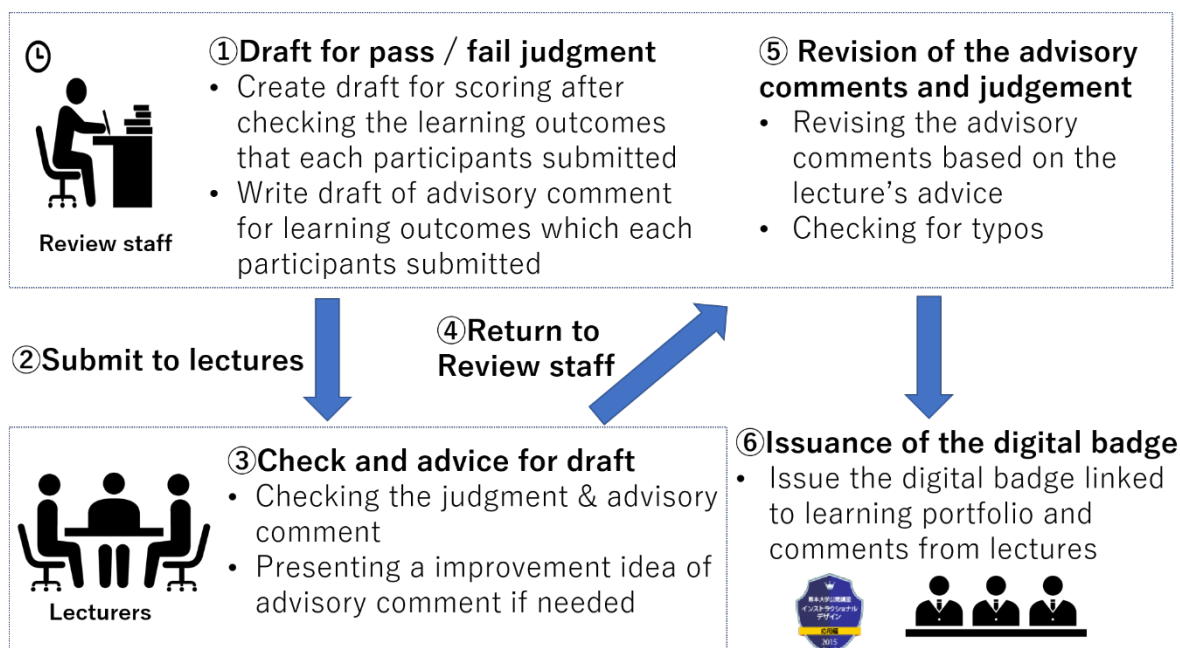


Figure 3. Team issuing style of the digital badges

Results and Discussions: Participants' Reactions and Current Issues

In 2015, we redesigned our methods—shifting from a one-day face-to-face workshop to the digital badge program. Table 1 shows how the number of those who acquired a digital badge in ID courses changed. Although the number of participants vary each year, the ratio of those who acquired the digital badge to the number of overall participants increased following the design improvements of the program year by year.

Below is a list of some participant comments left on the questionnaire provided after they after acquired the digital badge: “Kumamoto University should continue to provide the digital badge program because we want you to reduce ambiguous and irrational education”; “Please spread the digital badge to other educational institutions”; “I think that the digital badge in this program will contribute to improving the quality of education.” These positive comments suggested that the digital badge program, which employed a team-issuing operation style, may contribute

to quality assurance in education. These reactions led us to conclude that the team-issuing style is useful and effective in the digital badge program.

On the other hand, one problem that persists in this program is the workload of the review staff. Reviewing one participant's learning outcomes and creating drafts for advice takes approximately one hour. Therefore, for each digital badge issued, 140 hours of work was required. One solution for this problem is to raise the tuition fee and increase the number of reviewers, but since this program is part of the open educational activities, we want to avoid implementing a tuition fee for this service, if possible. Accordingly, another solution must be considered. For example, one solution would be to create a community that will allow the participants who completed the program and the staff of Kumamoto University to act as reviewers. If this is possible, we could construct a sustainable peer tutoring system. With reference to the Cognitive apprenticeship and community of practice (Lave & Wenger, 1991), we would like to create an authentic and sustainable learning community that does not simply provide rewards.

Table 1
Numbers of participants who acquired the digital badge in ID courses

Year	Introductory courses	Practical courses
2015	63 (35%)	34 (60%)
2016	144 (71%)	74 (80%)
2017	140 (77%)	65 (80%)

※Note: The parentheses indicate the percentage of digital badge acquirers among participants.

Concluding Remarks

In this research, we described the operating system of the digital badge program. By introducing the team style, we constructed a transparent and logical process for issuing digital badges. After implementing the process, we confirmed that the number of those who acquired the digital badge increased steadily. Furthermore, our work suggested that the digital badge—operated through a team-issuing style—might contribute to increased quality assurance of education. The current project only examined how to create a best practice. Further investigation should be conducted to increase the number of those working on the digital badge program through creating authentic learning communities.

Acknowledgements

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References

- Amano, K., Suzuki, K., Tsuzuku, S., & Hiraoka, N. (2017). Designing a digital badge as a reflection tool in blended workshops. *The Journal of Information and Systems in Education*, 16 (1): 12-17.
- Amano, K., Kita, T., Tsuzuku, S., Suzuki, K., & Hiraoka, N. (2018.8) How did learners use digital badge as a reflection tool after completion of educational program. *Paper presented at ICOME2018*, Retrived January 2019 from https://docs.wixstatic.com/ugd/ed9a4c_8c328b4215f04ad8b9028d644e3cc4be.pdf
- Carey, K.L. & Stefaniak, J.E. (2018). An exploration of the utility of digital badging in higher education settings. *Educational Technology Research and Development*, 66 (5): 1211-1229.
- Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L. B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honor of Robert Glaser* (pp. 453-494). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge [England]; New York: Cambridge University Press.